

Appl. No. 10/827,005
Response Dated October 20, 2008
Reply to Office Action dated July 16, 2008

Amendments to the Claims

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Currently amended) A digital logger system adapted for receiving and recording audio telecommunication signals, the digital logger system comprising:

a multichannel interface circuit adapted for concurrently and continuously receiving audio telecommunication signals for at least two telephone calls, and for continuously transmitting digital audio data extracted from the received audio telecommunication signals;

a Universal Serial Bus ("USB") hub for receiving the digital audio data continuously transmitted from the multichannel interface circuit, and for transmitting the digital audio data to a USB root hub; and

a personal computer ("PC") having [a] the USB root hub that is coupled to the USB hub, and which:

receives the digital audio data transmitted from the USB hub; and

executes PC software that continuously monitors the received digital audio data for:

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decoding line status and signaling information embedded in digital audio data to determine status of a telephone line including a telephone line "going off hook;" and

upon detecting a telephone line "going off hook," recording both:

an audio header that stores information about a telephone call; and

an audio file that stores compressed digital audio data for the telephone call.

2. (Original) The digital logger system of claim 1 wherein the multichannel interface circuit includes:

line interfaces, equal in number to the number of telephone lines from which the multichannel interface circuit receives audio telecommunication signals, for electronically conditioning the received audio telecommunication signals; and

at least one COder and DECoder ("CODEC") which receives conditioned audio telecommunication signals from the line interfaces for converting the received audio telecommunication signals into digital audio data, and for transmitting the digital audio data to the USB hub.

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3. (Original) The digital logger system of claim 2 wherein the CODEC is a stereo analog CODEC which simultaneously converts two separate received audio telecommunication signals into two separate digital audio data, and transmits both of the digital audio data to the USB hub.

4. (Original) The digital logger system of claim 2 wherein the CODEC is a linear Pulse Code Modulation ("PCM") CODEC.

5. (Original) The digital logger system of claim 1 wherein the multichannel interface circuit includes:

a line interface for electronically conditioning audio telecommunication signals received from a digital hybrid telephone line;

a framer which receives the conditioned audio telecommunication signals from the line interface, interfaces the physical layer of digital hybrid telephone line signals received from the line interface, and transmits digital audio data; and

a peripheral controller which exchanges digital audio data with the framer and with the USB hub.

6. (Original) The digital logger system of claim 1 wherein the PC software includes a search engine which upon

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decoding of Dual-Tone Multifrequency ("DTMF") signaling for a telephone call initiates a real-time reverse-lookup which accesses publicly accessible directories and business information.

7. (Original) The digital logger system of claim 1 wherein the PC software includes a search engine which upon decoding of Automatic Number Identification ("ANI") {also known as Caller ID ("CID")} for a telephone call initiates a real-time reverse-lookup which accesses publicly accessible directories and business information.

8. (Original) The digital logger system of claim 1 wherein the PC software includes a search engine which upon decoding of Automatic Location Identification ("ALI") for a telephone call initiates a real-time reverse-lookup which accesses publicly accessible directories and business information.

9. (Original) The digital logger system of claim 1 wherein upon the PC software detecting a telephone line "going off hook," the PC software transmits digital audio data to the multichannel interface circuit which causes the multichannel interface circuit to transmit an audible announcement to a caller via that telephone line.

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10. (Original) A signal processor adapted for use with a PC that includes a USB root hub, and that executes PC software for continuously monitoring digital audio data received via the USB root hub of audio telecommunication signals, the PC software:

decoding line status and signaling information embedded in digital audio data to determine status of a telephone line including a telephone line "going off hook;" and

upon detecting a telephone line "going off hook," recording both:

an audio header that stores information about a telephone call; and

an audio file that stores compressed digital audio data for the telephone call;

the signal processor comprising:

a multichannel interface circuit adapted for concurrently and continuously receiving audio telecommunication signals for at least two telephone calls, and for continuously transmitting digital audio data extracted from the received audio telecommunication signals; and

a USB hub for receiving the digital audio data continuously transmitted from the multichannel interface circuit, and for transmitting the digital audio data to the USB root hub of the PC.

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11. (Original) The signal processor of claim 10 wherein the multichannel interface circuit includes:

line interfaces, equal in number to the number of telephone lines from which the multichannel interface circuit receives audio telecommunication signals, for electronically conditioning the received audio telecommunication signals; and

at least one CODEC which receives conditioned audio telecommunication signals from the line interfaces for converting the received audio telecommunication signals into digital audio data, and for transmitting the digital audio data to the USB hub.

12. (Original) The signal processor of claim 11 wherein the CODEC is a stereo analog CODEC which simultaneously converts two separate received audio telecommunication signals into two separate digital audio data, and transmits both of the digital audio data to the USB hub.

13. (Original) The signal processor of claim 11 wherein the CODEC is a linear PCM CODEC.

14. (Original) The signal processor of claim 10 wherein the multichannel interface circuit includes:

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a line interface for electronically conditioning audio telecommunication signals received from a digital hybrid telephone line;

a framer which receives the conditioned audio telecommunication signals from the line interface, interfaces the physical layer of digital hybrid telephone line signals received from the line interface, and transmits digital audio data; and

a peripheral controller which exchanges digital audio data with the framer and with the USB hub.

15. (Original) In a digital logger system adapted for receiving and recording audio telecommunication signals, the digital logger system including a PC which executes PC software that:

monitors digital audio data of audio telecommunication signals for line status and signaling information embedded in digital audio data to determine status of a telephone line including a telephone line "going off hook;" and

upon detecting a telephone line "going off hook," records both:

an audio header that stores information about a telephone call; and

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an audio file that stores compressed digital audio data for the telephone call,
the improvement comprising;

a search engine which, upon decoding of appropriate signaling information for a telephone call, initiates a real-time reverse-lookup that accesses publicly accessible directories and business information.

16. (Original) The digital logger system of claim 15 wherein the search engine initiates a real-time reverse-lookup which accesses publicly accessible directories and business information upon decoding of DTMF signaling for a telephone call.

17. (Original) The digital logger system of claim 15 wherein the search engine initiates a real-time reverse-lookup which accesses publicly accessible directories and business information upon decoding of ANI (also known as CID) for a telephone call.

18. (Original) The digital logger system of claim 15 wherein the search engine initiates a real-time reverse-lookup which accesses publicly accessible directories and business information upon decoding ALI for a telephone call.

19. (Currently amended) A digital logger system adapted for receiving and recording audio telecommunication signals, the digital logger system comprising:

an interface circuit that includes a CODEC, the interface circuit being adapted for receiving an audio telecommunication signal for at least one telephone call, for converting the received audio telecommunication signal into linearly coded digital audio data, and for transmitting the linearly coded digital audio data extracted from the received audio telecommunication signal; and

a PC which:

receives the linearly coded digital audio data transmitted from the interface circuit; and

executes PC software that monitors the received digital audio data for:

decoding line status and signaling information embedded in digital audio data to determine status of a telephone line including a telephone line "going off hook;" and

upon detecting a telephone line "going off hook," recording an audio file that stores digital audio data for the telephone call after first converting the

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linearly coded digital audio data into μ Law compressed digital audio data.

20. (Currently amended) (Currently amended) The digital logger system of claim 19 wherein:

the interface circuit includes a USB hub for receiving the digital audio data transmitted from the interface circuit, and for transmitting the digital audio data to a USB root hub; and

the PC includes [a] the USB root hub that is coupled to the USB hub for receiving the digital audio data transmitted from the USB hub.

21. (Original) The digital logger system of claim 19 wherein the interface circuit includes a line interfaces for electronically conditioning the received audio telecommunication signals before conversion to linearly coded digital audio data.

22. (Original) The digital logger system of claim 19 wherein the CODEC is a stereo analog CODEC which simultaneously converts two separate received audio telecommunication signals into two separate digital audio data for transmission from the interface circuit to the PC.

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23. (Currently amended) A method for receiving and recording audio telecommunication signals, the method comprising the steps of:

- a. concurrently and continuously receiving an audio telecommunication [signals] signal for at least [two] one telephone [calls] call;
- b. converting the received audio telecommunication signal into linearly coded digital audio data;
- c. continuously transmitting the linearly coded digital audio data extracted from the received audio telecommunication signals to a PC;
- d. within the PC:
 - i. receiving the linearly coded digital audio data;
 - ii. continuously monitoring the received digital audio data;
 - iii. decoding line status and signaling information embedded in the continuously monitor digital audio data to determine status of a telephone line including a telephone line "going off hook;" and
 - iv. upon detecting a telephone line "going off hook," recording both:
 - A) an audio header that stores information about a telephone call; and

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B) an audio file that stores compressed digital audio data for the telephone call.

24. (Original) The method of claim 23 further comprising the step of electronically conditioning the received audio telecommunication signals before converting the audio telecommunication signals into linearly coded digital audio data.

25. (Original) The method of claim 23 further comprising the step of, upon decoding DTMF signaling for a telephone call, initiating a real-time reverse-lookup which accesses publicly accessible directories and business information.

26. (Original) The method of claim 23 further comprising the step of, upon decoding ANI (also known as CID) for a telephone call, initiating a real-time reverse-lookup which accesses publicly accessible directories and business information.

27. (Original) The method of claim 23 further comprising the step of, upon decoding ALI for a telephone call, initiating a real-time reverse-lookup which accesses publicly accessible directories and business information.